

## METHODS FOR ISOLATING POLYHYDROXYALKANOATES FROM PLANTS

### Abstract

Methods are provided for separating polyhydroxyalkanoates ("PHAs") from plants, such as transgenic oil crop plants. The methods advantageously permit both the oil and the PHAs to be recovered from the plant biomass. To isolate the PHAs, in one embodiment, a biomass derived from an oil crop plant is pre-processed, for example by grinding, crushing or rolling. The oil then is extracted from the biomass with a first solvent in which the oil is soluble and in which the PHAs are not highly soluble to remove the oil. The biomass then can be extracted with a second solvent in which the PHA is soluble, to separate the PHA from the biomass. Alternatively, the PHA-containing biomass is treated with a chemical or biochemical agent, such as an enzyme, to chemically transform the PHA into a PHA derivative. The PHA derivative then is separated from the mixture using, for example, a physical separation process such as distillation, extraction or chromatography. Advantageously, using the method, the plant oils, the PHAs and PHA derivatives can be recovered and purified on a large scale from oil containing plants such as transgenic oil crop plants.

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